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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/858,267	05/15/2001	Yasuo Tatsumi	12109.44US01	2685

7590 02/27/2003

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EXAMINER	
SPITZER, ROBERT H	

ART UNIT	PAPER NUMBER
1724	13

DATE MAILED: 02/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/858,267	TATSUMI ET AL.	
	Examiner	Art Unit	
	Robert H. Spitzer	1724	

-- The MAILING DATE of this communication appears on th cover she t with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 January 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *6-8 and 10-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *6-8 and 10-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 23, 2003 has been entered.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 6-8 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirooka et al. (5,122,164) in view of either Leavitt (5,415,683) or the Japanese literature article entitled "Numerical Simulation of a Pressure Swing Adsorption Process for Oxygen Production". Hirooka et al. (5,122,164) show an adsorption system which utilizes two adsorbers which operate in a PSA cycle, a vacuum pump and a surge tank and show preferred adsorbent particle sizes of 12 to 20 mesh, at col. 3, lines 29-37. When those particle size values are put into the velocity equation, the results obtained would be the same as Applicants' particles. The claims differ from the PSA apparatus of Hirooka et al. ('164) in specifying the use of an air blower in the feed gas line to the system. Leavitt ('683), at Fig. 2, shows a PSA system which includes a pair of adsorbers, a feed blower, a waste gas line vacuum pump, and a surge tank for the non-

adsorbed product gas. Likewise, the Japanese article, at Fig. 1 on page 18, shows a similar PSA structure including an air blower, adsorbent beds A and B, a surge tank and a vacuum pump. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the PSA system of Hirooka et al. ('164) with a feed gas blower in order to raise the feed gas to the desired pressure for the adsorption step of the PSA cycle, in view of the showing of either Leavitt ('683) or the Japanese literature reference, as the feed gas is not always available at a sufficient pressure for the adsorption step and an air blower (compressor) is sometimes necessary.

4. Applicant's arguments filed January 23, 2003 have been fully considered but they are not persuasive. Applicants' remarks to the structure of the PSA system including a feed blower, a pair of adsorbers, a surge tank and a vacuum pump are moot as those components are clearly shown by the above references. Applicants' are also reminded that the claimed PSA structure is described in their specification are being known in the art and shown by JP 11-179132. Applicants' contibution to the art is their finding of an equation which is used for calculating the velocity values of the PSA system. Specifying such equation for calculating those velocity values does not provide any structure to the adsorber housing which contains the particles of adsorbent material, as such structure is merely a housing which contains the specific size of adsorbent particles. That is, the claims recite structure which includes an adsorber housing containing adsorbent particles of a specific size. That specific size is 1 mm. The primary reference to Hirooka et al;. ('164) clearly shows an adsorber housing containing adsorbent particles having that size and being used in a PSA process. As stated before in the prosecution of the

instant application, as the Hirooka et al. ('164) reference has particles of adsorbent having that size of 1 mm, the reference would also have velocity values which satisfy the equation in these claims. Hirooka et al. ('164) does not show the equation, but the reference does not have to, as such equation adds no structure to the adsorber housing. Any other remarks made by Applicants and not specifically commented on by the Examiner have been considered.

5. The remaining newly cited references all show PSA systems which have at least two adsorber vessels, a feed gas blower (compressor), a surge (product gas) tank, and a vacuum pump on the waste gas line.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert H. Spitzer whose telephone number is (703) 308-3794. The examiner can normally be reached on Monday-Thursday from 5:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Simmons, can be reached on (703) 308-1972. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310 and for After Final communications the fax number is (703) 872-9311.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Robert H. Spitzer
February 12, 2003

Robert H. Spitzer
Primary Examiner
Art Unit 1724
February 12, 2003